UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

FEB 28 1996

Dr. Neil Drobny
President
Commodore Remediation Technologies, Inc.
1487 Delashmut Avenue
Columbus, Ohio 43212

Dear Dr. Drobny:

This letter grants an amendment to the approval dated September 11, 1995 to conduct research and development (R&D) on the disposal of polychlorinated biphenyls (PCBs) to Commodore Remediation Technologies, Inc. (Commodore) located in Columbus, Ohio. This amended R&D approval gives Commodore the opportunity to do research on different matrices in the dechlorination of polychlorinated biphenyls (PCBs). This amended R&D approval (Appendix I, Enclosure) allows Commodore to dechlorinate PCB contaminated liquids, sludges, and miscellaneous and nonmetallic materials at Commodore facilities in Columbus and Marengo, Ohio. Commodore proposes to remove PCBs at concentrations up to 900,000 ppm in polyaromatic hydrocarbons, industrial and analytical solvents and up to 400,000 ppm from spent sand blast media, electric cables, metallic plates, sediments, nonmetallic pipes, appurtenances, sediments and sludges up to 100,000 ppm. Enclosed is an amendment to the approval document for the R&D studies entitled "Amendment of Approval to Conduct Research and Development Tests to Dispose of Polychlorinated Biphenyls (PCBs), Commodore Remediation Technologies, Inc., Removal of PCBs from Different Matrices, with a Chemical Dechlorination Process."

The proposed studies will remove PCBs from soils, PCB contaminated liquids, sludges, sediments and miscellaneous and

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nonmetallic materials. The effective dates for this approval are effective from the date of the signature of the Director of Chemical Management Division to September 30, 1996.

Please direct matters concerning this subject to Winston Lue of my staff at (202) 260-3962.

Sincerely,

John W. Melone, Director
Chemical Management Division

Enclosure

cc: John Connell
Region V
PCB Coordinator

Enclosure

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

AMENDMENT OF APPROVAL TO CONDUCT RESEARCH AND DEVELOPMENT TESTS TO DISPOSE OF POLYCHLORINATED BIPHENYLS (PCBS)

COMMODORE REMEDIATION TECHNOLOGIES, INC.
COLUMBUS, OHIO 43212

RESEARCH AND DEVELOPMENT OF THE REMOVAL OF PCBs FROM DIFFERENT MATRICES WITH A CHEMICAL DECHLORINATION PROCESS

This approval is issued to the Commodore Remediation Technologies, Inc. (Commodore) and their affiliated companies, namely Commodore Laboratories, Inc. in Columbus, Ohio and Commodore Technologies, Inc. in Marengo, Ohio, to conduct research and development (R&D) on its alternate method of (Polychlorinated Biphenyls) PCBs disposal. The purpose of this experimental permit is to conduct research on the removal of PCBs from different matrices (Appendix I) incorporating ammonia and calcium metal (as the catalyst) to dechlorinate PCBs.

Authority

This approval to conduct research and development into PCB disposal is issued pursuant to Section 6(e)(1) of the Toxic Substances Control Act of 1976, Public Law No. 94-469, and the Federal PCB Regulations, 40 CFR Part 761.60(e), (48 Federal Register, 13185, March 30, 1983).

Background

On August 23, 1995, Commodore submitted to the EPA a Research and Development (R&D) application to treat and dispose of PCBs using an alternate PCB disposal method to remove PCBs from soils and other matrices. The purpose of this R&D Approval is to expand Commodore Research and Development laboratory work on PCBs to field tests.

On November 7, 1995, Commodore submitted to EPA a request for amendment to the R&D permit dated September 11, 1995. The amendment includes changing the feedstocks (as described in Appendix I) to add liquids, sludges, sediments, and miscellaneous metallic and nonmetallic materials contaminated with PCBs (feed materials) as additional feedstocks for the AGENT 313 ™ process.

The R&D studies will be directed by Commodore. Commodore is responsible for site access and control. This technology, under the trade name AGENT 313 ™, has been developed by Commodore Laboratories (CLI) formally known as A.L. Sandpiper Corporation. Sandpiper Corporation of Columbus, Ohio.

At the beginning of the process, feed material is charged in a reactor vessel with liquid ammonia and calcium. After the mixing phase, the process waste ammonia/water mixture is filtered and transferred to an ammonia recovery system to regenerate the

liquid ammonia. The treated material is removed and sampled before it is placed in 55-gallon drums. The pilot scale ammonia recovery system uses a small compressor to remove the ammonia gas from the ammonia/water mixture. The ammonia vapor is then pressurized and liquefied for recycling. The reaction vessel is run in a batch mode with treatment and ammonia solvent recovery taking place in a cycle of 24 hours or less.

The ammonia may also be recovered directly from the reactor by the ammonia recovery system.

Fugitive emissions are controlled around the system during the transfer of materials to and from the reactor vessel by a High Efficiency Particulate Air (HEPA) Filter. Ammonia emissions are controlled by passing the process exhaust gas through a wet scrubber.

Proposed Test

Commodore shall dispose of all materials used in and generated from the tests at EPA-approved PCB disposal facilities. This shall include soils, liquid, rags and other solid debris. Equipment and processing vessels shall be decontaminated according to the procedures in 40 CFR 761.79 or Commodore may use its Nationwide Approval to decontaminate these vessels.

Business Confidentiality: Pursuant to the regulations at 40 CFR Part 2, Subpart B (41 Federal Register, 36905, September 1, 1976, and 43 Federal Register, 39997, September 8, 1978), Commodore is entitled to assert a business confidentiality claim covering any information submitted under this research and development approval. If such a confidentiality claim is not asserted with any submission, EPA may make this information available to the public without further notice. Information subject to a business confidentiality claim may be made available to the public only to the extent set forth in the above cited regulations. Any such claim for confidentiality must conform to the requirements set forth in 40 CFR §2.203(b).

Liability: The issuance of this research and development approval does not release Commodore from any liability for damage to persons or property caused by or resulting from the operation or maintenance of equipment covered by this approval. The conditions of this approval are enforceable under the Toxic Substances Control Act (the Act) and its implementing regulations, 40 CFR Part 761. Any actions by Commodore which violate the terms and conditions of this letter, the Act, or the regulations may result in administrative, civil, or criminal enforcement by EPA in accordance with Section 16 of the Act, 15 U.S.C. §2615.

Findings:

1. The Commodore process is a chemical dechlorination process system used to destroy PCBs from feed materials such as contaminated soils, liquids, sludges, sediments, and miscellaneous metallic and nonmetallic materials (Appendix I).

2. The Commodore process is a closed system and does not pose an unreasonable risk to human health and the environment. The process does not emit harmful materials into the air, water, soils, or other surfaces. Liquid and solid wastes will be disposed of by incineration or at an EPA-approved disposal site in accordance with 40 CFR 761.60(e).

3. Commodore has submitted data which indicate that the Commodore process has the capability to remove PCBs in soil to levels of <2 ppm in treated material and <10 microgram per 100 square centimeters in wipe samples from treated metallic surfaces. Furthermore, the Commodore unit precludes emissions or discharges to the atmosphere. Therefore, EPA finds that an approval for R&D studies of the Commodore PCB disposal method is equivalent to operations conducted on a 40 CFR Part 761.70 incinerator or 40 CFR Part 761.60 high efficiency boiler, and that the proper operations of the Commodore disposal unit do not pose an unreasonable risk of injury to human health or the environment.

4. Test Location: The proposed R&D study of the Commodore unit shall be conducted at the Commodore's Marengo facilities for pilot and commercial scale and at the laboratories in Columbus, Ohio for the bench top scale.

Conditions of Approval:

1. Advance Notification: A thirty-day advance notification of the R&D tests must be provided to the appropriate EPA Regional Administrator, the State and local officials where the Commodore process will be tested. This notice must include the exact site and date using the treatment process along with an estimate of the length of stay at the site. In addition, these notices shall include information pertaining to the type of material to be treated, amount and concentration of material to be treated, and information on how to contact responsible parties. A copy of the notice shall be submitted to EPA Headquarters.

2. Other Permits and Approvals: Prior to commencing operations, Commodore shall obtain any necessary Federal, State or local permits or approvals. Commodore shall comply with all conditions and requirements of such permits or approvals. Copies of such permits shall be forwarded to the Chief, PCB Disposal Section (7404) EPA Headquarters. [Note: waste materials containing PCBs in the concentration range of approximately 200 ppm of PCBs may also contain levels of hexachlorobenzene or other chemicals at levels regulated for disposal under the Toxicity Characteristic Revisions (55 Federal Register, 11796, March 1990) of the Resource Conservation and Recovery Act (RCRA) regulations]. This Approval does not shield Commodore or its operators from any applicable Federal, State and Local regulations and ordinances.

3. Feedstock Restrictions: Feedstock for this R&D approval will be restricted to the submission from November 7, 1995 that described PCB contaminated liquids, sludges, and miscellaneous and non-metallic materials (Appendix I).

The quantity of PCB feed materials will be limited to the specific matrix, maximum contamination level and a maximum quantity as described in Appendix I.

Prior to and after treatment in the Commodore process, feed material is sampled and analyzed according to EPA-approved procedures that are outlined in the following documents:

"Guidelines for PCB Destruction Permit Applications and Demonstration Test Plans," EPA Contract No. 68-02-3938, April 16, 1985;

"Quality Assurance and Quality Control Procedures for Demonstrating PCB Destruction in Filing for an EPA Disposal Permit"; USEPA, June 28, 1983 (Draft);

"Recommended Analytical Requirements for PCB Data Generated on-site During Non-thermal PCB Destruction Tests" March 19, 1986; and

"Interim Guidelines and Specifications for Preparing Quality Assurance Plans", QAMS-005/80, Office of Research and Development, USEPA, December 29, 1980.

4. Process Waste Restrictions: All process wastes shall be disposed of as if they contained the original pretreatment concentration of the feedstock.

In other words, after the R&D, all solid process waste and material containing less than 2 ppm PCBs must be managed in one of five ways: (1) incinerated, (2) disposed of by a TSCA approved treatment equivalent to incineration, (3) non-liquids may be disposed of in an EPA-approved TSCA landfill, or (4) stored, so as not to exceed the one year storage for disposal requirements.

5. Process Quality control: All samples drawn must be analyzed in duplicate by gas chromatography according to EPA-approved procedures to determine their PCB concentration.

6. Transport of PCB: Untreated PCB-containing water, solvent or solids may not be transported off the Commodore facility by the Commodore treatment unit except for proper disposal. PCB-contaminated equipment on the Commodore disposal units may be transported off-site in accordance with the U.S. Department of Transportation (DOT) requirements of Title 49, CFR Part 172. Such requirements include placarding the mobile facility and labeling all PCBs.

7. Process Monitoring/Recording: Provisions must be made to assure that the following process elements are suitably monitored and recorded for soil processed, such that materials harmful to health or the environment are not advertently released:

a. quantity and PCB concentration in feed materials processed during the liquid extraction of PCBs (for example, soil);

b. quantity and PCB concentration of process waste generated (i.e., sludge, filter media, water, spent solvent or other effluents), including vent gases or other emissions;

c. temperature and pressure of the physical separation process at minimum in one-half hour intervals;

d. names of operator and supervisor.

This information and all pertinent test data shall be incorporated into a test report and submitted to EPA Headquarters.

8: R&D Test Report: At the conclusion of each R&D effort, a final report including all test results and related information on this R&D project shall be submitted to OPPT for evaluation. The R&D Test Report should include, at a minimum, the following items:

a. Certification letter. This letter, signed by an authorized official, must certify on behalf of the approval holder that the tests were carried out in accordance with the approved application and the results of all determinations are submitted

in the report. Any changes or deviations by the applicant from the application must be documented and submitted in writing to the EPA.

b. Detailed discussion of all process operations, operational problems, if any, and corrective actions.

c. Chronology of significant events.

d. Quality assurance report. This should address all the QA objectives, including whether or not precision and accuracy objectives were met, as well as results of quality control samples, performance audit samples and systems audits.

e. Waste handling. The applicant should provide documentation (copies of manifest) to show all wastes generated during the R&D process test were properly disposed of according to TSCA and RCRA regulations. The applicant should be aware that all wastes generated during the test should be disposed of by incineration and not land filling, unless compliance with the landfill restrictions can be demonstrated.

This information along with information in Condition 7 and all other pertinent test data shall be incorporated into a test report and submitted to EPA Headquarters no later than 90 days after the completion date of testing.

9. PCB Releases: In the event Commodore or an authorized facility operator of the Commodore process believes, or has reason to believe that a PCB or other hazardous material release has or might have occurred, the facility operator must inform the PCB Disposal Section Chief (202-260-3964), the EPA Regional V PCB Coordinator, the National Response Center (1-800-424-8804) and the Ohio Environmental Protection Agency.

A written report describing the incident must be submitted to the parties above mentioned by the close of business on the next regular business day. No PCBs may be processed in that facility until the release problem has been corrected to the satisfaction of the local EPA Region.

10. Facility Inspection: EPA employees shall have access to the Commodore process during the test runs for purposes of inspection, observation, or sampling. This access is subject to the normal safety and security requirements placed on Commodore personnel or their agents. Any restrictions due to safety requirements shall have been included in the permit application.

11. Safety and Health: Commodore or its agents must take all necessary, precautionary measures to ensure that operation of the Commodore process is in compliance with the applicable safety and health standards, as required by Federal, state and local regulations and ordinances. Any lost-time personal injury

occurring as result of the Commodore process must be reported to the EPA Region V PCB Coordinator by the next regular business day.

12. Facility Security: The Commodore process shall be secured (e.g., fence, alarm system, etc.) at the test site to restrict public access to the area.

13. PCB Spills: Any spills of PCBs or other fluids shall be promptly controlled and cleaned up as provided in the Commodore Spill Prevention Control and Cleanup Plan. In addition, a written report describing the spill, operations involved, and cleanup actions must be submitted to EPA Region IV within five (5) business days.

14. Personnel Training: Commodore is responsible for ensuring that personnel directly involved with the handling or disposal of PCB contaminated material using the Commodore process, are demonstrably familiar with the general requirements of this R&D approval. At a minimum this must include:

the type of material which may be treated during the testing of the Commodore process and the upper limit of the PCB contamination which may be treated;

basic reporting and recordkeeping requirements under this R&D approval and the location of these records at the test site; notification requirements; and

waste disposal requirements for process and by-product wastes generated during the testing of the Commodore PCB disposal process. In this regard, Commodore must maintain on-site during the testing of the Commodore process a copy of this R&D approval; the Spill Prevention Control and Cleanup Plan; and sampling and analytical procedures used to determine PCB concentrations in untreated and treated materials.

15. PCB Regulations Compliance: Commodore shall comply with all applicable requirements of the Federal PCB Regulations, 40 CFR Part 761, in the operation of the Commodore process; particular note should be given to:

40 CFR 761.65 - storage for disposal;

40 CFR 761.79 - decontamination; and

40 CFR 761.180 - records and monitoring.

16. Permit Variance: Any departure from the conditions of this research and development approval or the terms expressed in the application, demonstration plan, and R&D plan from Commodore must receive authorization of the EPA. Verbal authorizations by EPA must be followed within ten working days by a written notification from Commodore describing all proposed modifications or variances. In this context, "application, demonstration plan,

and R&D plan" shall be defined as all data and materials which have been received by this Agency from the Commodore regarding the Commodore PCB disposal method.

Under the above conditions, and given the circumstances under which the research and development tests will be conducted, the Office of Toxic Substances finds, pursuant to 40 CFR 761.60(e), that these R&D tests will not present an unreasonable risk of injury to health or the environment.

17. Approval Effective Dates: This amendment to the approval (dated September 11, 1995) shall become effective on the date of signature of the Division Director of Chemical Management Division and shall expire on September 30, 1996.

Under the above conditions, and given the circumstances, under which the R&D tests will be conducted, EPA Headquarters' Chemical Management Division finds, pursuant to 40 CFR, Section 761.60(e), that these tests will not present an unreasonable risk of injury to health or the environment.

This approval is valid only when the Process is operated by Commodore Remediation Technolgies, Inc. or an affiliated Commodore Company as above-mentioned. If Commodore wishes to lease or contract out their process to another company, then the other company must also apply for and receive a permit from EPA before operating this process.

Approval to conduct research and development into PCB disposal is hereby granted to the Commodore Remediation Technolgies, Inc. at facilities located in Marengo and Columbus, Ohio subject to the conditions expressed herein, and consistent with the materials and data included in Commodore's application.

_____
Date

_____
John W. Melone, Director
Chemical Management Division

APPENDIX I

Matrix	Contamination Level (ppm PCBs)	Maximum Amount (pounds)
Soils	400,000	4,000
Spent sand blast media (sand, silica, silicon carbide, containing paint chips and dust, and trace amounts of iron and steel	400,000	2,000
Electrical cable (copper and aluminum conductors with or without steel braiding, insulated with synthetic plastics and rubber, and possibly containing paper, fabric, or other insulating wrappings	400,000	1,500
Metal plates, pipes, and appurtenances (iron, copper, steel, nickel, brass, bronze, and alloys of these materials containing trace amounts of other metals	400,000	2,000
Plastic, felt, and fabric materials	400,000	500
Sludges from settling ponds, lagoons, basins, and tanks containing water, PAHs, and other organic and inorganic compounds such as arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, potassium, cyanide, ammonia, phosphorous (trace amounts of all elements)	100,000	4,000
Sediments from impounded and flowing waters containing water, soils, sands, organic compounds, PAHs, and cadmium, copper, chromium, lead, and trace amounts of other elements	400,000	4,000
PAHs in liquid form containing petroleum based lubricant and dielectric materials and mineral oils, and contaminated with carbon, water, soil, and metal oxides	900,000	500
Industrial and analytical solvents, including amines, alcohols, chlorinated and fluorinated hydrocarbons, aliphatic and aromatic hydrocarbons, ketones, terpenes, ethers, esters, polyether esters, sulfolane, dimethyl sulfoxide, and ammonia	900,000	1,000